AN INTRODUCTORY ADDRESS

ON THE

PRESENT PROBLEMS RELATING

TO THE

ORIGIN OF MODERN RACES

Delivered at the Opening of the Winter Session in Medicine at the University of Birmingham on October 7, 1913

BY

ARTHUR KEITH, M.D.ABERD., F.R.C.S.ENG.,

Conservator of Museum and Hunterian Professor, Royal College of Surgeons of England. President of the Royal Anthropological Institute of Great Britain and Ireland

[Reprinted from "The Lancet," October 11, 1913]

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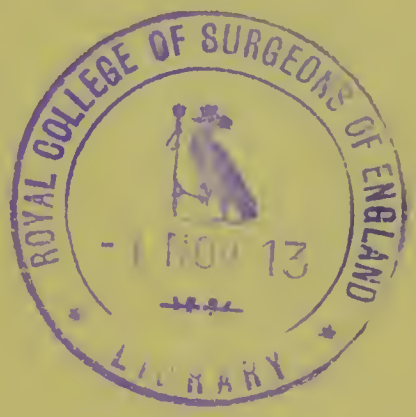

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Gentlemen,—Less than a month ago the Principal of this University took the members of the British Association a long excursion into space, and bade them look on the planet on which they live at such a distance that neither man nor beast was within the limits of sight. Only great structures like the Forth Bridge and the Assuan Dam were visible.* To-night I want you to look at the earth a little closer—near enough to see its variegated covering of humanity as its continents revolve under our eyes.

The World's Carpet of Humanity.

As the western seaboard of Europe passes by and our own country comes in sight we shall suppose we are near enough to perceive that the human carpet along

* *The Lancet*, September 13, 1913, p. 785.

our western coast is not quite of the same texture as that which covers the lands sloping down to the North Sea. When Europe itself comes under our gaze the pattern of the human carpet begins to change, and by the time the Far East has risen under the morning sun we shall admit, I think, that the change has become decided. A pall of smoke, the wreckage of the battle-field, the demarcation of new frontiers reveal to us one of the processes at work in modifying the pattern of our carpet. When we turn our eyes southwards and view Africa across the Mediterranean there is at first no marked degree of change—not until the great forest region beyond the Sahara comes in sight. A glance from Northern Europe to Central Africa reveals the extremes in the earth's covering of humanity—not the extremes of material—merely of pattern or design; European and African seem to be products of the same loom. In the southern corner of Africa human contrasts of another kind may catch our eye. We may there see a valiant attempt being made to weave a new human carpet, one in which the European thread of the woof will not intertwine with the African thread of the warp. In this new carpet lie the decaying threads of one of the most remarkable patches to be seen in the widespread covering of humanity—the Bushman and Hottentot tribes.

As Europe and Africa sink out of sight and Asia rolls past under us, we see the human pattern again undergo a change. South of the Himalaya the plains of India are covered by peoples of diverse kinds, in whom we seem to detect a mixture of European and African features. North of the Himalaya a wide part of the earth is covered by men who are quite unlike those already seen elsewhere. The Mongolian type cannot be compounded by mixing other known elements of humanity. South of the Equator—the Asiatic aspect of the hemisphere—in Australia and the islands of the Pacific we may perceive a bewildering mixture of human patterns, varying from the negro type towards the European and also towards the Mongolian. Lastly, the New World unfolds itself. At first sight it seems to present an entirely European complexion. Peering

beneath the surface, however, it is easy to see numerous remnants of diverse and ancient races. More than in any part of the earth the web of humanity is being actively woven in the New World. North of Mexico there is a resolute determination to keep the white and black threads separate; from Mexico to Cape Horn nature weaves the human web as she will.

The Permanency of Human Types.

Having thus followed Sir Oliver Lodge into space and surveyed in a cursory manner the world's carpet of humanity, we shall now return to earth and see what we can ascertain concerning when and how it came to be woven. It is the "when" rather than the "how" which concerns us in the present hour. The belief is still general that it is not many thousand years since the world became populated by the races of modern man. Such a belief is not illogical. When we try to imagine what has happened in the past we must base our speculations on what is taking place under our eyes at the present time. There is a restlessness, a migratory instinct inherent in a considerable proportion of every population. I dare think that in Birmingham there are to be found not only natives of every county of England, but that most of the Welsh, Scotch, and Irish counties are also represented. Birmingham has not only received, it has also given. If it resembles other towns it has sons and daughters throughout the world. The objection will be at once made to this train of reasoning that the migratory tendency alluded to is of recent origin—that it is a result of our modern civilization. Industrial or individual migration is a new condition, but predatory or collective migration has evidently been in existence as far into the past as history or tradition can take us. Amongst more primitive races of man—and it is they who give us the key to the early state of civilized races—there lurks a deep-rooted tendency to collective migration. When we realize the rapidity with which a people may multiply and the tendency inherent in all human races to migrate, it is conceivable that mankind may have

spread from a centre and occupied the whole earth in the space of a few thousand years.

The discoveries which have been made during the last fifty years clearly indicate that the distribution of mankind and their separation into widely different races have not been a rapid but a very slow process. Thanks to the labours of the Archæological Survey of Egypt, to Dr. Reissner, to Professor Elliot Smith, Dr. Wood-Jones and Dr. Derry, we know something of the people who occupied the Lower Nile Valley during the last 8,000 years. At every phase of that long period there was found evidence of the arrival of new types—of migrations or invasions of Egypt—but there was also clear evidence of the survival of the old types. There was evidence of mixture, but the final conclusion to be drawn from a study of the ancient inhabitants of the Nile Valley is that the passage of 8,000 years left the prevailing human types modified to only a slight degree. Recently Dr. Seligman has shown that certain native tribes near Suakin on the Red Sea have features and bodies very similar to the predynastic Egyptians. The explorations of Mr. Henry S. Wellcome in ancient cemeteries of the Soudan have demonstrated that the peculiar, tall, slender, long-limbed negro tribes which now occupy the upper waters of the Nile were there at least 2,000 years ago. The lesson that Egypt has to teach us is that human types are not easily changed. The explanation which is usually given—and I am prepared to accept it—is that the conditions of life along the Nile Valley have remained unchanged during recent millenniums, thus ensuring the permanency of the human type.

When we turn to America we find further evidence of the permanence of human types. In recent years Dr. Ales Hrdlicka, of the Bureau of American Anthropology, has written two excellent memoirs on the remains of ancient human skeletons which have been discovered in the New World. Of those discoveries I propose only to cite one—the human skeleton discovered at Lansing, in the State of Kansas, eleven years ago, in a glacial deposit at a depth of 23 ft. Dr. Frederick Wright, who has given a lifetime to the study

of glacial deposits in North America, and especially to the antiquity of man in that country, regards the deposit under which the skeleton was found as formed before the last cycle of glaciation, and gives its probable antiquity as about 12,000 years. If the European cycles of glaciation were contemporaneous with those of North America, then the antiquity, if I may infer from the estimates given by our own geologists, is very much greater than has been calculated by Dr. Frederick Wright. No one has ever called in question, no one can call in question, the authenticity of the age of the Lansing skeleton. Dr. Hrdlicka, however, rejects it as representative of ancient man in America on the ground that "this man was physically identical with the Indian of the present time, and that his physical characteristics during all the thousands of years assumed to have passed have undergone no important modification." We see from that statement that Dr. Hrdlicka is under the belief, one which is widely held at the present time, that human types are so liable to variation that it is impossible for them to breed true over a long space of time. We must accept facts as we find them, and suit our beliefs to fit our observations. The plain lesson of the Lansing find is that before the last great glacial cycle there existed a type of man in the central States almost identical with the modern Indian of the same region.

The Early People of England.

When we come to study the history of our own countrymen we reach a similar conclusion. Our archæologists are opening up Anglo-Saxon cemeteries of the fifth and sixth centuries and revealing to us the physical characters of the people who gave us their language and their blood. Their teeth were better than ours, their limb bones are usually rather different in conformation, but the counterparts of those people are to be seen on every hand at the present day. Every year we come to know more of the people who inhabited Britain in the Roman period; they are the same kind of people as ourselves; their heads showed the same

variety of forms as may be seen in Birmingham to-day. When we go further back, to the time before iron was used and weapons were made of bronze—to a date which takes us some 2,000 years before the birth of Christ, we find human types with which we are still familiar. Those handsome men with high, rounded heads, whom we now know as squires and men in posts of authority, first appear in our country at this date. They were originally natives of Central and Eastern Europe; they were not a new type of man—only new to England. When we go further back and explore those mounds or barrows which contain the men who lived in England in the Neolithic period we do not find new types; the men of that time, except as concerns the state of their teeth and shape of their limb bones, were at one with us. Five thousand years ago the men of England were of our stature, had the form of head and the strength of muscle which has been given to many of us.

When we pass beyond the Neolithic period to reach the time when only stone implements of the more ancient or palæolithic type were used, we were supposed, until a few years ago, to come to a blank or hiatus in our knowledge. That blank is in the process of disappearing. Recently Mr. Reginald Smith, of the British Museum, has recognized that the flint implements which were left by the men who dug those peculiar pits at Cissbury and in other parts of England were not early neolithic people as is usually supposed, but were in reality palæolithic folk. Now we know some of the skeletons of these early Englishmen; they were men exactly of the common British type. Lately I had an opportunity of examining two discoveries of human remains from Kent which were so similar that they might have been almost members of the same family, yet we are fairly certain that they belong to very widely separated periods. The remains of one set of people were discovered at the base of an ancient stone monument at Coldrum, in Kent, within the valley of the Medway, by Mr. F. J. Bennett, F.G.S. Only worked flints of a neolithic type were found during the excavations; we may, therefore, presume

that the people who were buried in the ancient tomb at Coldrum were Kentish people of the Neolithic period. The more ancient skeleton was discovered a short distance from Coldrum, near the little town of Halling, situated on the Medway, a few miles above Rochester. At Halling the Medway is flanked by a terrace of brick-earth, laid down at some previous period, when the Medway flowed a number of feet above its present level. This terrace had to be cut through when a new sewage system was being constructed for Halling. The terrace was seen to be made up of a number of superimposed strata or layers, each layer or stratum being of different composition, and therefore marking a separate period in the action of the river. Beneath the fourth layer, counting from the surface, were found charcoal, charred stones, and remains of hearths, with worked flints which belong, not to the neolithic, but to the palæolithic type. They are similar to those found in the floor-strata of French caves, and are of the type assigned to that palæolithic phase of culture known as Aurignacian. The upper four layers had thus been deposited over an old habitation of the men who lived before the close of the palæolithic period—who actually were in Kent towards the close of the last cycle of the Glacial period. In the fifth stratum, at a depth of almost 6 ft. from the surface, was found a human skeleton, which has been preserved and investigated by Mr. W. H. Cook and Dr. Spencer Edwards. To me it is clear, from the flexed posture of the skeleton, that they were dealing with a burial, but not one made by modern men from the present land surface, but one made from the ancient land surface by the palæolithic men who lived before the last four layers of the terrace had been deposited. A full investigation of the skeleton showed that the palæolithic man of Halling was very near akin to the neolithic people of Coldrum, and yet the years which elapsed between the periods at which the one and the other lived must be counted in thousands. A few miles north of Halling, in the valley of the Thames, is Tilbury. When the docks were excavated an old land surface was reached at a depth of 32 ft.; 2 ft. below this old land surface was found the skeleton of the

Tilbury man. He belongs to that form of ancient Briton to which Huxley gave the name of "river-bed" type; he is first cousin to the men who have long lived on the shores of the Mediterranean, and which Sergi has distinguished as the Mediterranean race. The remains found at Halling and at Coldrum may also be assigned to the river-bed type. This type was not confined to the south-eastern part of England. From the old forest land now submerged along the western and southern coasts of England human skulls of this type have been recovered. The skull found in the Cheddar caves, and described by Mr. Davies as belonging to the closing phase of palæolithic culture, is of the same class. Some sixty years ago, when a cutting was made for a new railway near Mickelton in Gloucestershire, a skull of this type was found at a depth of 10 ft. beneath peat and undisturbed blue clay—certain indications of a great antiquity. A few years ago the Rev. E. H. Mullins explored a small limestone cave which lies in a narrow valley behind his rectory at Langwith Bassett in Derbyshire. In the cave he found numerous remains of animals—many of them now extinct—and clearly belonging to the geological period preceding the present—the Pleistocene period. He found worked flints and a human skull. The skull was of the river-bed type, but its condition was so fresh that at first I was inclined to think some mistake had been made. Mr. Mullins, however, showed me that the condition of preservation of the skull was exactly the same as that of the bones of the extinct animals. It is probable that the Langwith cave skull is of the same age as the Halling skeleton; both appear to belong to that period of palæolithic culture—the Aurignacian. How long it is since the Aurignacian period closed we have as yet no accurate means of judging, but those who have studied the changes which have occurred in our valleys and in our fauna suppose that we must make a liberal allowance of time—30,000 years or perhaps more.

The Antiquity of Man.

We have thus surveyed the history of the men of

three parts of the earth over a considerable period of time. In all three places the result has been the same —we see the same persistence of type in Egypt, in America, and in England. In this hall to-night there are representatives of the men of the Derbyshire cave and of the Halling terrace; in America the Red Indian preserves the form of men who lived before the last glacial invasion of North America; the predynastic Egyptian survives in the tribes on the shores of the Red Sea. We may, therefore, suppose that if inquiry were made in China, in India, or in Central Africa the result would be the same—that in Central Africa we could follow the negro type well back into the Pleistocene period; in China the Mongolian type, and in India the Dravidian. It is when we come to realize the persistency of human types that we see that we must allow a very long period indeed to cover the time needed —not for the population of the world, but for the differentiation of modern man into the well-marked races with which we are all familiar. The characters which separate the European, the Chinamen, the negro impress every one of us; we cannot overlook them. Yet when we come to examine those races structurally we must admit that they are so much alike that we must suppose, to account for their community of structure, that all three have come from a common stock.

The question we have to face in solving the problem of the antiquity of the modern races of man is: How long will it take for the separation of an African, an Asiatic, or a European, from a common stock? It is evident, from what we have discovered concerning the fixity of human types, that it will take a long period—infinitely longer than most modern geologists will allow.

When we approach the problem of the antiquity of man from the side I have tried to present to you, we obtain some assurance that the human beings who represent the common stock from which all our modern races have diverged could not be of a very low type. When we come to study the features which characterize the brains of the various human races—so far as these differences may be detected with the naked eye—we see

that they relate to structural details. In their main features they are alike. It is true that a skilled anatomist will, if you show him a representative specimen, distinguish the brain of a negro from that of a European or from that of a Chinaman; I do not think, however, he could tell with any degree of certainty the brain of the Chinaman from that of the European. Seeing that the brains of all modern varieties of men are so much alike in the essential features of their architecture, it is a legitimate inference, I think, that a large and moderately complex brain is a common inheritance of modern races—that in the common stock from which all modern races have arisen a fairly large human brain must have been already present. We, therefore, ought to find even before the differentiation of the present races of mankind that there were human beings in existence with large brains already.

I am now to lead you on to another aspect of this problem, which is hotly contested at the present time. In tracing backwards the ancient inhabitants of England, I left off with the remains which are assignable to the later part of the Pleistocene period. I now propose to advance well into that period. In the valley of the Thames there still persist, in the form of a gravel terrace, remnants of an ancient bed of the Thames. It is known as the 100-foot terrace, because it is situated about that distance above the level of the Thames. About the geological age of that terrace, at least its deeper strata, there is no dispute; it belongs to the earlier half of the Pleistocene period. Now it was in that terrace, at a depth of 8 ft., in strata which contained worked flints belonging to an earlier form of palæolithic culture, and with remains of pleistocene mammals, that the Galley Hill skeleton was discovered. The remains are those of a man of our type. It would not be easy to find his match in our present population; I doubt if anything approaching a counterpart to him could be found, but he could appear in a modern company without his features calling forth any special remark. The remains were discovered in 1888. Some years before a fragment of human skull was unearthed in a deposit of brick earth near Bury St. Edmunds at a depth of 7 ft.

With it were found mammoth tusks and implements of the Acheulean type—a culture which belongs to Middle Pleistocene time. It is only a fragment, but there is sufficient of it to make us certain that the original skull of which it formed part was shaped as in modern human races. Two years ago Mr. J. Reid Moir, of Ipswich, discovered a human skeleton beneath an undisturbed layer of chalky boulder clay 3½ ft. in thickness. The skeleton lay in the flexed posture, and probably represented a burial, but it was one made before the chalky boulder clay was laid down. That is a deposit following the great glaciation. The skull and skeleton have the features of modern races, all except the tibia—that was shaped differently to any human tibia I have yet seen. The Ipswich skeleton represents a man of the modern type. Thus, in my belief and in that of many competent men, we have discovered in England representatives of modern man in existence in England even before the middle of the Pleistocene period.

By Professor Boyd Dawkins and Dr. Smith Woodward such discoveries are regarded as impossible; with Dr. Hrdlicka they think that a human type could not persist from the Mid-Pleistocene to the present day unchanged. In their opinion all the human remains just mentioned represent neolithic burials. Our neolithic ancestors took the trouble to dig a grave 8 ft. deep in the 100-foot terrace, and laid the strata down again so carefully that we cannot now detect their forgery. The neolithic men of Bury St. Edmunds laid a fragment of a dead man's skull 6 ft. deep in brickearth with mammoth tusks and Acheulean implements to delude a simple set of men in the twentieth century into believing that mankind of our type was ancient!

Neanderthal Man and the Piltdown Skull.

Another obstacle to the belief in the antiquity of our own type of mankind has been removed in recent years. I may describe it as the Neanderthal bogey. A certain school of geologists became obsessed with the belief that it was impossible for any species of mammal to come through a long geological period unchanged, and

inferred that man could not escape so universal a law. The discovery of that extraordinary type of mankind over half a century ago—the type which is now known as Neanderthal—confirmed this belief. To a superficial eye Neanderthal man was just the individual wanted to represent our stage in evolution during the Pleistocene period. He had many simian features which we do not possess. We have come to realize now that he had also many high specializations, and that he cannot stand in the direct line of our ancestry. We know him now as a being quite distinct from all modern races; the difference between him and us is much greater than between a European and a negro; he represents a totally different form of human being. We now know his culture and his period. We have followed modern man right up to the threshold of the period at which he lived; it is also clear that he died out in front of modern man in the same way as the Tasmanian disappeared before the European. Neanderthal man does not represent our pleistocene ancestor. Where, then, is our pleistocene ancestor if not at Galley Hill, at Ipswich, and at Bury St. Edmunds? These remains were found in older deposits than those which contain the remains of Neanderthal man. In Italy it is the same as in England; human remains of our type have been found, but they have been rejected because they were not of the Neanderthal type.

The remarkable skull which was found at Piltdown by Mr. Charles Dawson and which has been described by Dr. Smith Woodward, is destined to throw a new light on the problem of man's antiquity. It was found in a very shallow deposit, little more than 3 ft. below the surface of the ground. If it had so happened that this skull presented modern characters, what would have been said of it? I am certain that Professor Boyd Dawkins, Dr. Smith Woodward, and Dr. Hrdlicka would have regarded it as a recent burial. If its high degree of fossilization had been brought to their notice they would have replied that fossilization was a most uncertain indication of antiquity; they would have cited bones from neolithic burials which show mineralization to an equally great degree. If it was pointed out to

them that the remains found with the skull were those of extinct animals belonging to the Pleistocene period they would have replied that a recent burial may be made in a pleistocene stratum and bones of different ages thus mingled. I draw your attention to those aspects of the case of the ancestor of modern man—he is sentenced before his trial begins. In the case of the Piltdown skull, characters are present which mark its ancient date. No modern man has such a chin or lower jaw; and if Dr. Smith Woodward is right in assigning the canine tooth found at Piltdown to this jaw no human being has been seen with such a simian canine tooth. In many features the Piltdown man foreshadows our type. Does he, then, represent our ancestors near the beginning of the Pleistocene period, admitting for the sake of argument that the Piltdown man is Pleistocene and not Pliocene in date?

The opinion I have formed is that he does not lie in the direct line of our ancestry. I base my opinion on the fact that we know of the remains of two different species or genera of mankind in Europe at the beginning of the Pleistocene period—one is the Heidelberg man, the other is the Piltdown. The Heidelberg man was certainly of the Neanderthal type, the Piltdown man is much more of our own type. They are clearly products of a common stock. We must presume, from what we know of man's nearer relatives—the anthropoid apes—that the common ancestor of Piltdown and Heidelberg man possessed the ledge-like overhanging eyebrow ridges which characterize the anthropoid forehead. These ridges have disappeared in the forehead of the Piltdown man; they have been retained by Neanderthal man. On the other hand, in the Heidelberg jaw the region of the chin already shows human modifications; the Piltdown man retained the simian form. The common Piltdown-Heidelberg ancestor, we may presume, had simian eyebrow ridges, a simian chin and simian canine teeth. In one of the descendants of that common ancestor the ledge-like supraciliary ridges have disappeared; in another the simian characters have disappeared from the chin. May we not also assume that there may have been a

third collateral descendant—one in which both eyebrow ridges and chin have assumed, or been modified to, a human shape. That missing form would serve well as our ancestor. We must, then, not dismiss as neolithic burials those human remains which have neither simian eyebrow ridges nor simian chins. I still maintain, as I did before the discovery of the Piltdown skull was made, that the Pliocene ancestor of modern man was one probably as highly evolved as the aboriginal man of Australia.

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